RESISTANCE ADJUSTER FOR ADJUSTING A RESISTANCE-PROVIDING MEMBER ON A STATIONARY BICYCLE

BACKGROUND OF THE INVENTION

1. Field of the invention

This invention relates to a resistance adjuster, more particularly to a resistance adjuster for adjusting a resistance-providing member on a stationary bicycle.

2. Description of the related art

Fig. 1 illustrates a conventional stationary bicycle that includes a flywheel 70, a resistance-providing member 71 that is in frictional contact with the flywheel 70 so as to provide resistance to the flywheel 70, and a resistance adjuster for adjusting the resistance-providing member 71. The resistance adjuster includes an operating member 72 mounted on a handlebar of the stationary bicycle, and a string 73 interconnecting the operating member 72 and the resistance-providing member 71. The conventional resistance adjuster is disadvantageous in that the resistance-providing member 71 tends to wear easily due to a rigid connection between the resistance-providing member 71 and the operating member 72 through the string 73.

SUMMARY OF THE INVENTION

Therefore, the object of the present invention is to provide a resistance adjuster with a buffering

member that is capable of overcoming the aforesaid drawback of the prior art.

According to the present invention, there is provided a resistance adjuster for adjusting a resistance-providing member, which is in frictional contact with a flywheel of a stationary bicycle. The resistance adjuster includes: a tubular housing adapted to be mounted on the stationary bicycle and defining an axial direction; an elastic buffering member that is disposed in the housing, that has upper and lower ends opposite to each other in the axial direction, and that is elastically compressible in the axial direction; an upper connecting member connected securely to the upper end of the buffering member; a lower connecting member opposite to the upper connecting member in the axial direction and connected securely to the lower end of the buffering member; a first string that extends into the housing to connect securely with the lower connecting member; a second string that extends into the housing to connect securely with the upper connecting member and that is adapted to be connected securely to the resistance-providing member; and an operating member adapted to be mounted movably on the stationary bicycle, connected securely to the first string, and operable to displace the buffering member, the upper and lower connecting members, and the first and second

strings in the axial direction so as to permit adjustment of the resistance-providing member.

BRIEF DESCRIPTION OF THE DRAWINGS

In drawings which illustrate embodiments of the invention,

Fig. 1 is a perspective view showing a conventional resistance adjuster for a resistance-providing member on a stationary bicycle;

Fig. 2 is a perspective view showing the first preferred embodiment of a resistance adjuster for a resistance-providing member on a stationary bicycle according to the present invention;

Fig. 3 is a fragmentary sectional view of the first embodiment;

Fig. 4 is a sectional view taken along lines IV -VI in Fig. 3;

Fig. 5 is a sectional view taken along lines V -V in Fig. 3;

Fig. 6 is a fragmentary sectional view of the first embodiment, with a buffering member and two connecting members displaced in an axial direction;

Fig. 7 is a perspective view showing the second preferred embodiment of the resistance adjuster according to the present invention; and

Fig. 8 is a fragmentary sectional view of the second embodiment.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

For the sake of brevity, like elements are denoted by the same reference numerals throughout the disclosure.

Figs. 2 to 5 illustrate the first preferred embodiment of a resistance adjuster for adjusting resistance provided by a resistance-providing member 300 to a flywheel 200 of a stationary bicycle 100 that is in frictional contact with the resistance-providing member 300 according to the present invention. The resistance adjuster includes: a tubular housing 10 mounted on the stationary bicycle 100 and defining an axial direction; an elastic buffering member 20 that is disposed in the housing 10, that has upper and lower ends opposite to each other in the axial direction, and that is elastically compressible in the axial direction; an upper connecting member 23 connected securely to the upper end of the buffering member 20; a lower connecting member 22 opposite to the upper connecting member 23 in the axial direction and connected securely to the lower end of the buffering member 20; a first string 42 that extends into the housing 10 to connect securely with the lower connecting member 22; a second string 32 that extends into the housing 10 to connect securely with the upper connecting member 23 and that is connected securely to the resistance-providing

member 300; and an operating member 50 mounted movably on a handle bar 500 of the stationary bicycle 100, connected securely to the first string 42, and operable to displace the buffering member 20, the upper and lower connecting members 23, 22, and the first and second strings 42, 32 in the axial direction (see Figs. 3 and 6) so as to permit adjustment of the resistance-providing member 300. Preferably, the buffering member 20 is in the form of a coil spring.

In this embodiment, each of the upper and lower connecting members 23, 22 is in the form of a cylindrical block that is in sliding contact with an inner wall of the housing 10 and that is formed with a clamping hole 231 (221) therein for extension of a respective one of the first and second strings 42, 32 therethrough, and a radial slit 233 (223) extending in a radial direction relative to the axial direction, intersecting the clamping hole 231 (221), and dividing the cylindrical block into first and second halves 238, 239 (228, 229). The clamping hole 231 (221) in each of the upper and lower connecting members 23, 22 has a cross-section, and extends in the axial direction. Each of the upper and lower connecting members 23, 22 includes a screw bolt 234 (224) that engages threadedly the cylindrical block, that extends through the first half 238 (228) of the cylindrical block and into the second half 239 (229)

of the cylindrical block in a transverse direction relative to the slit 233 (223), and that intersects the slit 233 (223) so as to reduce the cross-section of the clamping hole 231 (221) and to thereby clamp the respective one of the first and second strings 42, 32 between the first and second halves 238, 239 (228, 229) of the cylindrical block upon tightening of the screw bolt 234 (224).

The cylindrical block of each of the upper and lower connecting members 23, 22 is further formed with a confining hole 232 (222) therein for extension of the other of the first and second strings 42, 32 therethrough. The confining hole 232 (222) and the clamping hole 231 (221) in each of the upper and lower connecting members 23, 22 are diametrically disposed.

Each of the first and second strings 42, 32 is enclosed by a protective sheath 40 (30). The first string 42 has an upper end that is connected securely to the operating member 50, and a lower end 421 that is opposite to the upper end and that is connected securely to the lower connecting member 22. The second string 32 has an upper end 231 that is connected securely to the upper connecting member 23, and a lower end that is opposite to the upper end of the second string 32 and that is connected securely to the resistance-providing member 300.

The resistance adjuster further includes upper

and lower caps 13, 12 that are mounted respectively on upper and lower ends of the housing 10. Each of the upper and lower caps 13, 12 defines a confining recess 131 (121) that extends from the respective one of the upper and lower ends of the housing 10 in the axial direction. Each of the first and second strings 42, 32 extends through the confining recess 131 (121) in a respective one of the upper and lower caps 13, 12.

Figs. 7 and 8 illustrate the second preferred embodiment of the resistance adjuster according to the present invention. The resistance adjuster of this embodiment is similar to the previous embodiment, except that the second string 32 has an upper end connected securely to a brake operating member 60, which is mounted on the handlebar 500, and a middle segment 320 connected securely to the upper connecting member 23 and extending through the clamping hole 231 in the upper connecting member 23.

With the inclusion of the buffering member 20 in the resistance adjuster of this invention, the aforesaid wearing problem as encountered in the prior art can be eliminated.

With the invention thus explained, it is apparent that various modifications and variations can be made without departing from the spirit of the present invention.